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Chapter 12: Strategic forecasting of cross-border digital finance and trade ecosystems

12.1. Introduction

With the rapid evolution of science and technology, various ecosystems for cross-border digital finance and trade are emerging, including networks for supply chain finance, trade finance, digital financial and trade infrastructure, international payment and settlement, digital currency systems, merchant bank digital currency wallets, trade facilitation system apps, cryptocurrency supply, and virtual commodity transaction. Among them, the development of digital trade and finance ecosystems represented by CBDC, stablecoin, Bank digital wallet, financial infrastructure, and digital trade facilitation measures is the most prominent. In particular, the global digital currency landscape is accelerating, which has brought new opportunities for the development of cross-border trade and finance. Building a commercial credit landscape for international trade and investment is key to the strategic forecast of the cross-border digital finance and trade ecosystem (Huo et al., 2024; Adeoye et al., 2025; Ebabu et al., 2025). The interrelation of trade credit transfer and finance creation organizations in the global digital ecosystem is also key to the forecast of the future direction of the cross-border trade and finance landscape. New fintech services and platforms are emerging to facilitate global virtual goods transactions and face-to-face commodity trading and settlement, relying on an international credit digital transaction structure supported by shared data. Credit-backed digital currency, cross-border trade facilitation and Bank digital wallet solutions can promote the flow of trade credit used to settle international trade transactions and the growth of collective mutual statements aimed at preventing transaction risks (Peters, 2023; Xu, 2024; Ogunmola, 2025).

12.1.1. Background and Significance

The interdependence between trade and finance has made cross-border digital finance the academic frontier and practical emphasis for boosting cross-border trade

development. The process of digital economy development, driven by digital trade and financial technology innovation, has profoundly changed the traditional cross-border trade and finance format, service models, etc. Efforts to promote the integration of trade and finance, build a digital trade and finance ecosystem, and simulate development mode innovation have become a major concern and common choice for countries around the world. China's digital finance and trade ecosystem are highly complementary and mutually reinforcing. However, the situation and prospect of digital finance and trade development, the impact of external environment changes on this development process, and the strategic choice of relevant stakeholders are not only theoretical issues that need to be solved urgently but also practical issues that affect the construction of a modern economic system with trade and finance pattern optimization.

Fig 12.1: Trategic Forecasting of Cross-Border

Actually, the research on cross-border digital finance and trade started late, and some issues are still blank. Some researchers think that the influence of digital trade on China's cross-border digital finance is limited. The study believes that digital trade has an evident impact on China's cross-border digital finance; however, the bilateral trade volume hysteria makes China's digital process of digital finance and trade uneven. Some empirical research proves that the level of China's digital finance innovation is significantly positively correlated with the level of digital trade; at the same time, the relative openness of China's digital trade and investment structure also has a significant positive effect on the technological innovation of digital finance. These studies mostly focus on China's policy on using digital finance to promote digital trade or discuss the digital trade empirical relationship affected by other factors. In this regard, there are still some deficiencies.

12.2. Overview of Digital Finance

Digital finance is an emerging area of study, straddling the intersection between finance and digitalization, which refers to the wider trend of digitalization of the economy and society at large. Digital finance is defined as the implementation of innovative technologies for the design, finance, delivery, and utilization of financial services and products. Digital finance encompasses a multitude of various, but interrelated, elements, such as open finance, digital innovation in financial services, digitalization of the established financial industry, finance for the digital economy, blockchain technology, data science and digital finance, digital finance in a business and management context, and considerations of a normative nature. Digital finance serves to fulfill the functions of money.

Digital finance has emerged as a new source of innovation, and a powerful force for transforming and modernizing the landscape of financial services in helping the economy recover from the consequences of the pandemic-induced crisis. It refers to the development or offering of innovative technological solutions. Digital finance is not only reshaping the infrastructures of finance and its products and services, but also the very fabric of financial markets and the overall institutions of finance. Digital finance also means that finance is not merely acted out by the established financial sector. Rather, finance, and its many dimensions such as risk and risk management, as well as the provision and flow of resources, encompass a much broader playing field that includes both established and new players across multiple industries. Digital finance is distinctive because it is built around new technologies.

12.2.1. Definition and Scope

Digital finance, also referred to as digitization and digitalization of finance, can be defined as the digital technology platform promoting the production, distribution, and consumption of financial products and services by providing functions, for example, of digital infrastructure for fast access to financial offer, information and transaction security, product standardization, process automation, financial system reliability, and efficiency. Digital finance connects users and offers of funds, operating in digital currencies, making it possible at the same time to reduce costs and remove multiple existing bottlenecks. Digital finance will lead to a major transformation of the entire financial ecosystem, creating borders between current and future technological, institutional and normative components. It will enable the continuous growth of financial services, maintaining their transparency, reliability and efficiency. Digital finance ecosystem will rest on a technological financial substrate, called digital shadow of the economy, based on digital technologies, connectivity and very efficient data management. It consists of physical infrastructure, developed and sufficiently distributed

digital devices, endowing users with security, which allow enabling connectivity of actors involved in financial operations in real time, their functional digital currency allowing minimizing the cost of carrying out financial operations and a sufficiently developed and well regulated digital space that guarantees the security of data infrastructure. Digital finance must also rest on an institutional financial substrate, based on traditional financial institutions, with an improved interaction with customers by allowing the permanent monitoring of their needs, and new types of micro and nano financial digital players collectively intervening, making it possible to fill market gaps. Such an ecosystem must also establish close relations with the physical and economic ecosystem.

12.3. Cross-Border Trade Dynamics

Trade represents a dynamic system of relationships that drive the concurrent supply and demand of goods and services between economically interactive entities, including individuals and organizations. Trade can be described in a variety of ways, but the most basic definitional framework expresses trade as the money-driven exchange of products or services across a barrier or border. As the increase involves legal and normal channels, not every increment is counted as part of Gross Domestic Product. Economists use border trade flows, which correspond roughly to the activities of citizens in what would otherwise be invisible to trade, as corrections to GDP, mainly because these cross-border trade flows exclude domestic transactions.

Cross-border trade activities flourish because of differences in resource endowments. The production of tradable goods and services provides and expands demand for the economy's factors of production. This idea underlies a long-standing theory of international trade. Economic models of trade with varying factor endowments emerge from the work of various economists. The assumption of factor price equalization is the building block of most trade theory. Countries have capital-intensive sectors whose production utilizes large amounts of capital but little labor, and labor-intensive sectors whose production utilizes large amounts of labor but little capital. The production of goods and services with their input combinations allows consumption freely to fluctuate with changing factor endowments. It is through the adjustment of product prices in the international marketplace that trade fulfills the critical function.

The most important caveat is that trade has long been associated with economic prosperity. Gains from trade, competition, and division of labor are seen as the great leading forces in the commercial world. The idea that saving is the source of capital, and the creation of capital is the source of trade, highlights the trade link that exploits the benefits of specialization, based upon varying resource endowments, and the competitive energy of merchants; and it thereby initiated and nurtured the early growth of economies.

12.3.1. Global Trade Frameworks

Global trade provides the dimensionality for all trade systems. Trade plays an important role in determining the level of engagement between two countries.

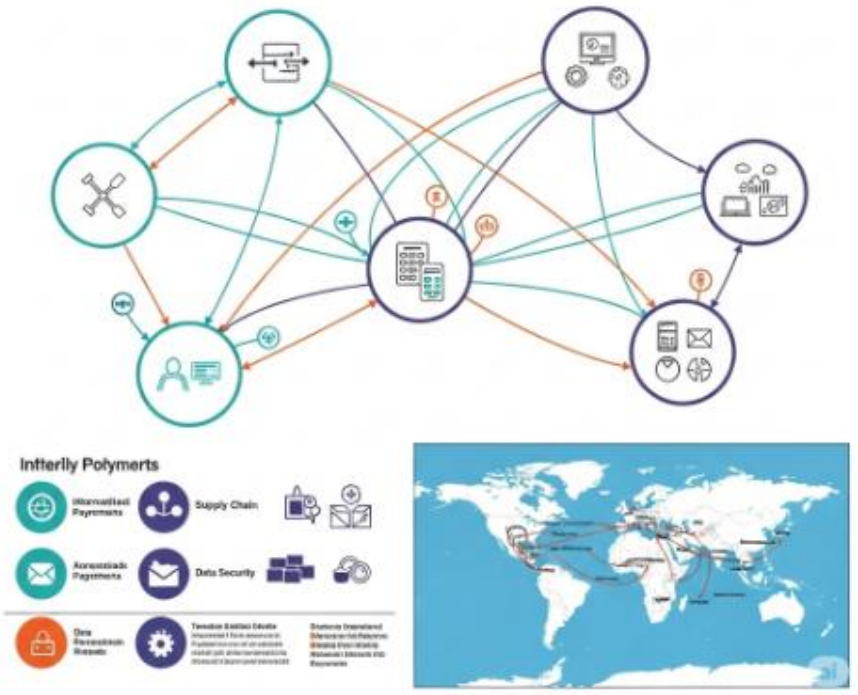

Fig 12.2: Global Trade Frameworks of Strategic

Countries that consistently trade with one another are linked through a mechanism that engages the demand and supply sides of each partner economy. Trade also supports inter-country ties and alliances built over centuries and millennia. The governance of global trade through rules and regulations reduces the transaction costs associated with trade. Established practices for the governance of trade disputes retrofitted through multilateral, regional, and bilateral institutions help shape global trade dynamics and determination of a broad underlying trade framework. There are two broadly classified types of trade agreements that shape global trade. A global trade agreement is a multilateral agreement aimed at policy coordination among a large number of countries.

The aim is to maximize the level of economic welfare by reducing barriers to international trade. Trade agreements at a regional or bilateral level allow the countries to gain from trade with comparative advantages with a smaller set of countries. Unlike a global trade agreement where trade preferences are extended to all signatories, the regional or bilateral trade removing trade barriers for trade exclusive to those countries typically gives a larger trade liberalization benefit to the signatories. Trade agreements

at a regional and bilateral level can therefore coexist with a global trade governance framework. These trade agreements can be used to incrementally increase the amount of trade, and improve the distributional effects using negotiation as a key component.

12.4. Key Players in Digital Finance

A wide range of organizations, commercial and public sector, provide services in payment systems, exchanges, deposit-taking, lending, and insurance. Except in the case of public authorities controlling service systems, such as the State Treasury, essential for the functioning of the economy, these firms will be driven by the profits that they can realize on the domestic and cross-border trade and capital flows using their services in the digital economy. In many cases, the investment they make in developing services and systems is driven by non-pecuniary motives, including enhancing their Government's reputation as a global commerce platform. The profitability of these firms is clearly a matter for political decision, but the way in which they engage competitively with one another is, to a large extent, a function of the regulatory framework applied to these firms.

In low-visibility models, such as digital wallets and white-labeled bank accounts, the conduct of business is managed on the part of private firms operating as intermediaries to domestic public authorities, responsible for monitoring illicit cross-border flows, or indirectly to the G20, which has called for this approach. Banks and other authorized institutions are expected to conduct due diligence on customers – Know Your Customers procedures – in addition to verifying the transaction counterparties; reporting suspicious transactions to authorities; monitoring and reporting transactions above specified thresholds; and storing records, all in a manner consistent with current legislation on the identification of ultimate beneficial owners. If cryptocurrency exchanges do not do so, transactions are treated as being high-risk, and you will need to take additional steps to assess the risks. For a "real time" transaction, this will be virtually impossible to validate and, therefore, the only option available is to treat these as high-risk and decide what kinetic measure of transaction or currency change to make.

12.4.1. Financial Institutions

Digital economy and digital trade cannot be fully realized without financial services. The market for cross-border payments alone is estimated at USD 156 trillion or 85% of global GDP. Digital economy trades per GDP are on average 10% for advanced economies and 6.5% for developing economies yet strong digital economy growth in the developing world more than triples this percentage. Within trade in goods, digital economy accounts for about 3% and for services about 1% without digital economy showing proportionate

increases in the technological enabled sectors. Digital economy sectors would be unable to sustain value added or play their role in enabling growth of the rest of the economy without sustained access to financial services. For cross-border digital economy transactions, especially for those relating to the provision of service or purchase of goods formerly relied upon a small group of domestic and foreign banks of good repute, perhaps acting through correspondent networks. Providing financial services, management of the settlement process, and guaranteeing trust were below the horizon of the transactors in issue.

Now, e-commerce platforms are taking on this function through digital wallets albeit using traditional banking institutions as payers and payees are still reliant upon those for credible settlement in existing currencies. The advent of central bank digital currencies has brought parties to transactions closer together in cyberspace; no longer need an intermediary. But that makes real risks of hot money and difficulty in actually managing the relevant transaction as liquidity is moved through which is most relevant for smaller transactions prone to credit or currency risk. Hence the currency swap and clearinghouse/broker models.

12.5. Technological Innovations

Forecasting the future of cross-border digital finance and trade ecosystems requires both expert opinion and quantitative indicators of ecosystem-related trends. This chapter begins the task of mining various forward-looking indicators presented in the previous expert opinion report, as well as both qualitative and quantitative trends related to technology, culture, and the evolution of digital ecosystems relevant to FINdigital and TRADEdigital with a view toward enabling the development of digital infrastructure that is both globally interoperable and locally relevant. This deep-dive area of the report is where we present possible trajectories by pulling on the threads across the different domains. The goal is to help predict possible future states for CDPPs and their underlying infrastructure in a way that could be useful for Digital Public Policy leaders who are thinking about how to create incentives so that the underlying infrastructure will exist when we need it.

Technological innovations are often the initial causes of ecosystem changes. For example, blockchain technology and financial innovation are the basis for building a cross-border digital finance ecosystem. Cross-border digital currency track building depends largely on whether the technology is mature enough to support it.

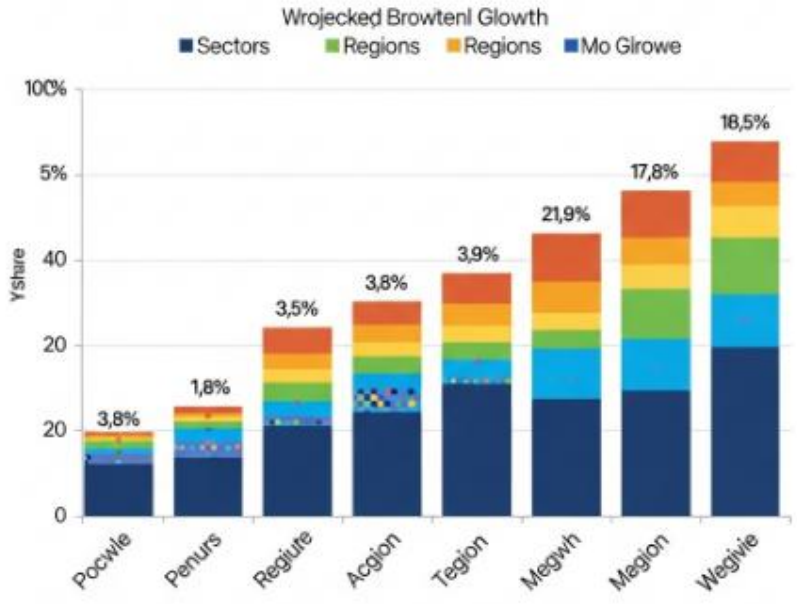

Fig : Cross-Border Digital Finance and Trade Ecosystems

12.5.1. Blockchain Technology

The rapid technological development associated with the digital transformation is introducing a major paradigm shift in how enterprises understand and develop their businesses. The term FinTech refers to a set of corporate solutions that apply the use of technology in an innovative way to the provision of financial services or by the financial services themselves. Although FinTech can be considered as a growing industry focused on innovation in products and technologies that have the potential to disrupt the financial services sector or that can be applied to financial services, the term includes any innovation in financial services or the injection of technological solutions by traditional financial services companies.

Blockchain technology originated from the need to create cryptocurrencies. However, the significant benefits offered in terms of security, transparency and trust in electronic transactions are motivating its application also to other areas of the economy beyond cryptocurrencies. Blockchain technology represents a digital ledger technology based on the data stored in blocks, cryptographically sealed and chained. Each block becomes a key piece of the transaction and, thus, the blocks need to be secure, avoiding any blocks modification or any user withdrawal other than the user considered authorized by the ledger. Because transactions undergo a validation process and cannot be altered, blockchain has the potential to become a more secure way to transfer and store assets,

making dishonest transactions virtually impossible. The blockchain's unique ability to create trust without relying on a third party has allowed many experts to predict a multitude of applications outside cryptocurrencies with a transformational potential.

12.6. Conclusion

Globalization of digital finance and trade is a key trend affecting social and economic development in many countries. Commercial services contribute to approximately 75% of GDP in developed countries and their commercial sectors need to continuously optimize structure and explore new areas of growth. Digital activities have emerged and expanded through the trade in services, retail, logistics, and other areas for almost all commercial service industries. Digital finance is playing an increasingly important role in stimulating the economic recovery of countries that have been severely affected by the pandemic, promoting economic growth, increasing employment levels, and enhancing economic resilience, particularly in developing countries.

The behemoth technology firms of developed countries currently dominate the cross-border digital economy. In regard to the development and utilization of cloud computing, big data, and artificial intelligence, China has now entered into a competitive relationship with the western technology giants. However, in regard to the provision of a variety of infrastructure products and commercial services for cross-border digital trade, China has lagged well behind. China must actively embrace globalization, utilize its dual markets, and strive to gradually cultivate national champions in the related arenas so as to build an advanced national digital infrastructure, enhance the level of integration of trade and investment, as well as trade and technology, cultivate talent in digitalization, optimize the digital ecosystem, and help elevate domestic commercial enterprises to a higher position in the cross-border digital trade value chain so that they can ultimately share the dividend of their dual markets with advanced countries.

12.6.1. Emerging Trends

If we look at the extent of socio-economic and financial development across the globe, the overall trends that emerge are as below:

First, digitization is second in importance only to climate change, in shaping the future. Financial transactions and payments are increasingly moving online. There is a rising use of e-commerce platforms, in addition to e-payments and banking. More and more of our personal interactions – with family, friends, businesses, banks, and with governments for getting benefits and services – are moving to social media platforms.

There will be much deeper integration of trade and digital financial ecosystems in the future.

Second, across economies with diverse phases of fintech and digital finance development, the underlying common trend is urgent demand for speed, efficiency, and low transaction cost in payments, remittances, and cross-border trade. This is a paradoxical development, because the scale of development is not commensurate with the ability to invest in specific technologies for specific solutions for such urgent demand, especially in emerging and developing economies. Therefore, in addition to identification and design of specific solutions, priority is availability of finance, especially foreign aid for development and investment finance from both government and private sector sources.

Third, the pandemic has led to major changes in how cross-border trade and supply chains will operate in the future. It has exposed both the risks and vulnerability from climate change and short term shocks from pandemics and conflicts, while at the same time has accelerated the digitalization of trade, and the supply chains that underpin them. Technologies such as blockchain will enable more distributed forms of supply chains.

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